


TMJ IMPLANTS
INCORPORATED

PATIENT INFORMATION

- 
- ☐ TREATMENT PLAN
 - ☐ TREATMENT OPTIONS
 - ☐ HEALTH-RELATED SURGERY ISSUES
 - ☐ POST-OPERATIVE INSTRUCTIONS



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PATIENT INFORMATION

Your doctor has advised you that he/she believes you have a temporomandibular joint disease (TMD). In this booklet, we want to tell you more about your treatment options and if surgery is indicated, what to expect after your procedure is completed.

TEMPOROMANDIBULAR DISEASE (TMD)

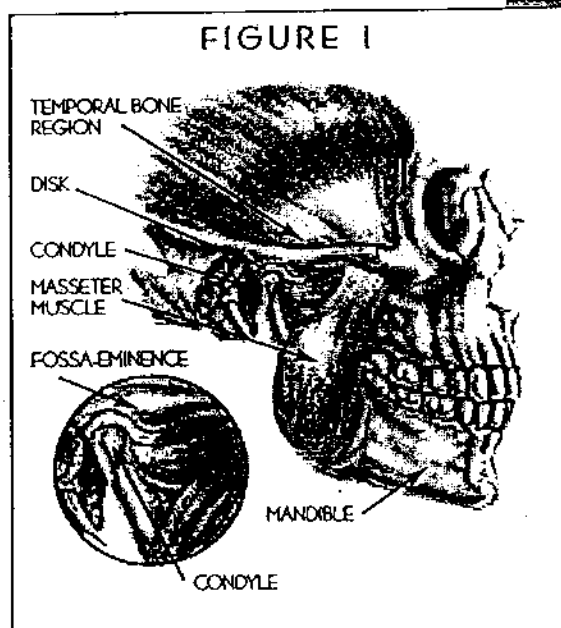
You probably visited your physician because you had pain in the face or jaw joint area, headaches, earaches, dizziness, clicking or popping sounds when you moved your jaw, difficulty in opening or closing your jaw, or other complaints. These symptoms are often associated with TMD, but may also be associated with other related conditions. TMD is a very complex medical condition, which is difficult to treat. At a recent National Institutes of Health Conference it was stated that "concern about safety and efficacy of the care provided to patients with TMD requires both clinicians and patients to achieve a better understanding of these health problems." Your physician undoubtedly did radiographic studies and an examination to rule out other causes for your pain. You may have also had previous surgeries to one or both of your joints. Your doctor has confirmed that your temporomandibular joint (TMJ) had degenerated to a lesser or greater degree, and is the source of your pain. Joint replacement should never be the first line of treatment for TMD. Depending on the extent of the worsening pain, and previous therapy, your surgeon is now recommending a joint replacement surgery.

HOW THE TMJ WORKS

The temporomandibular joint (TMJ) is one of the body's most complex joints. In a normal temporomandibular joint, it functions both as a ball and socket type joint and as a sliding (referred to as *translating*) joint. A healthy temporomandibular joint allows you to eat, talk, and swallow without pain. However, when a temporomandibular joint is diseased or damaged, it can hurt whenever you move your jaw. Sometimes just relaxing jaw muscles with no motion at all may cause pain. The source of pain in the head and neck is often difficult to diagnose. Care must be taken to rule out other factors that can cause facial pain.

A HEALTHY TMJ

The temporomandibular joint is formed where the rounded head of the condyle of the lower jaw, the "knob," joins the fossa-eminence, the "cup," of the temporal bone. The joint has a smooth, soft tissue separating material between the bony surfaces called the meniscus or disc. It covers the ball of the condyle, and connective tissue moves the meniscus in conjunction with the movement of the condyle. The jaw is powered by large muscles for movement, chewing, and swallowing. When all of the parts are healthy, a temporomandibular joint should move easily and smoothly.



AN UNHEALTHY TMJ

There are symptoms that may indicate a TMJ has a problem. Those symptoms can include pain, clicking, or joint sounds, limited opening and radiographic evidence (x-rays, MRI, MRAr, tomography, CT Scans, and/or a bone scan) of joint degeneration. Take time to discuss your individual diagnosis and any non-surgical options with your surgeon.



Figure 1: Ankylosis



Figure 2: Degenerative Joint Disease (Osteoarthritis)

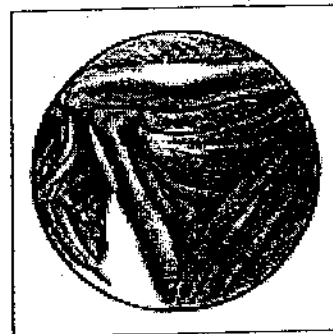


Figure 3: Anterior Meniscus Displacement

YOUR TREATMENT PLAN

YOUR TREATMENT PLAN

Your doctor uses the results of your history, clinical exam, range of motion, and x-rays and/or other imaging modalities to form a treatment plan that is right for you.

Your doctor is responsible for diagnosing and explaining your disorder to you. Disorders of the temporomandibular joints often follow a certain pattern from the initial signs of dysfunction to degenerative joint disease. They are summarized as follows:

1. Normal healthy joint
2. Conditions that interfere with the sliding of the disc on the condyle, the "knob"
3. Excessive muscle movement creating a forward pull on the disc
4. Thinning of the disc
5. Stretching of the tissues that attach to the disc
6. Functional displacement of the disc
 - a. Single click
 - b. Multiple clicking
7. Functional dislocation of the disc
 - c. Dislocation with reduction (catching) - This is where your jaw sometimes becomes locked in a position, and you have to move your jaw to get it back to a comfortable position (referred to as *periodic displacement of disc*)
 - d. Dislocation without reduction (closed lock) - This is where your jaw gets stuck, and requires your doctor to put it back into position (referred to as *permanent displacement*)
8. Inflammatory Arthritis (Rheumatoid arthritis)
9. Degenerative joint disease (Osteoarthritis)

Even if a patient has all of the above symptoms, surgery should not be the treatment of first choice. Surgical treatments are often permanent and can cause additional severe pain and/or jaw damage. Since the prevalence of TM disorders is very high, it is recommended that every patient who comes to the dental office be screened for these problems, regardless of apparent need and lack of need for treatment. The purpose of the screening history and examination is to identify patients with early signs as well as symptoms that the patient may not relate but are commonly associated with functional disturbances in your chewing motion (referred to as your *masticatory system*, i.e., headaches, ear

symptoms). The following are questions your general practitioners should ask:

1. Do you have difficulty opening your mouth?
2. Do you hear noises from your jaw joints?
3. Do you have frequent headaches?
4. Does your jaw get "stuck" or "locked"; does it "go out"?
5. Do you have pain in or about the ears or cheeks?
6. Do you have pain on chewing or yawning?
7. Does your bite feel uncomfortable or unusual?
8. Have you had recent injury to your head or neck?
9. Do you have arthritis?
10. Do you have any muscle or joint problems?
11. Have you ever been treated for temporomandibular disorders?

This is followed by a physical inspection of your face, bite, face muscles, and jaw movement. Several structures will be touched until you feel pain or tenderness, and should any positive indications be noted, a more thorough history and exam will be completed.

At this point, the TMJs are examined both clinically and radiographically. Any signs or symptoms associated with pain and dysfunction are noted. Diagnosis of temporomandibular disorders becomes an extremely important part of successful treatment.

YOUR TREATMENT OPTIONS

NON-SURGICAL TREATMENT OPTIONS

Upon diagnosing your current TM disorder, your doctor may prescribe some or all of the following conservative (reversible) therapy:

- Emotional stress therapy (relaxation, patient awareness, voluntary avoidance),
- Exercise,
- Prescription medications (i.e., anti-inflammatories, muscle relaxers),
- Physical therapy, Appliances (i.e., splint, night guard, occlusal guard),
- TENS unit (Transcutaneous electric nerve stimulation) This machine stimulates your muscles with a slight electric charge.

Or the following nonconservative (not reversible) therapy:

- Selective grinding of teeth (referred to as *occlusal adjustment*)
- Restorative and/or fixed dentistry (i.e., crowns and bridge)
- Orthodontic treatment
- Orthognathic (Jaw Bone) Surgery

SURGICAL TREATMENT OPTIONS

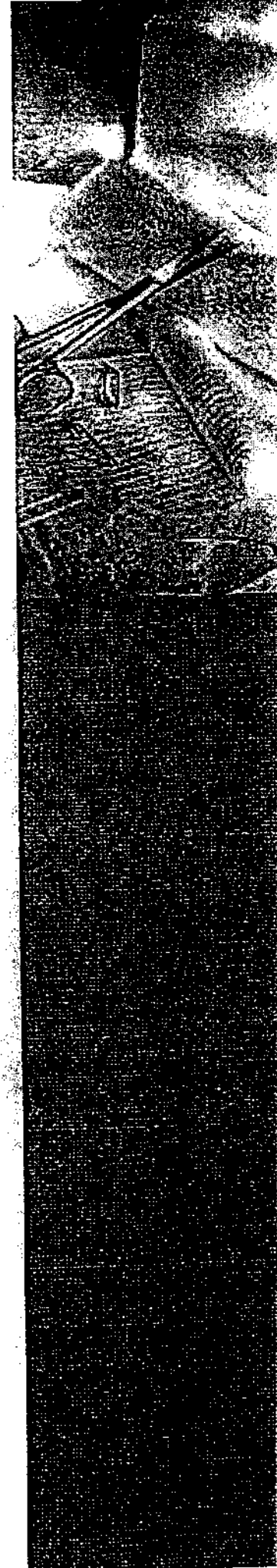
Depending on age and the amount of damage to your temporomandibular joint, surgery may be the best answer to your problem. Joint replacement surgery is considered as the last resort (referred to as a *salvage*) operation when there are no other options available. It is not known how long an individual joint replacement will last in any one patient.

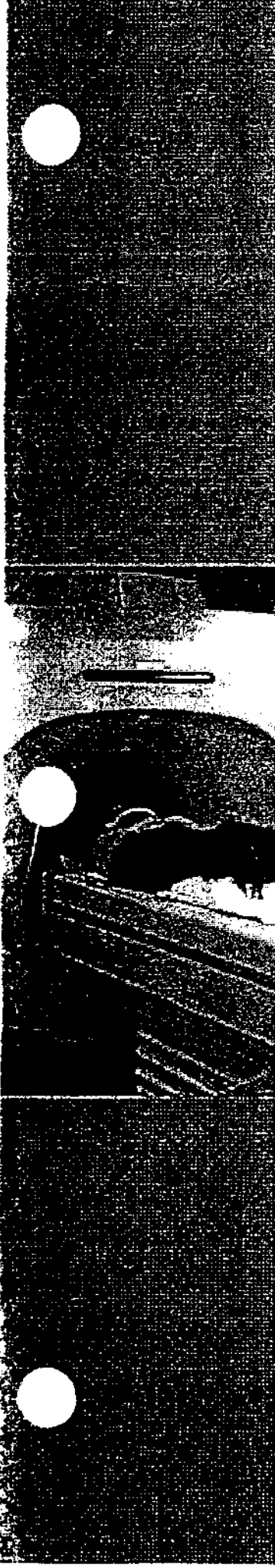
Keep in mind that different patients have varying degrees of joint worsening (referred to as *deterioration* or *degeneration*), requiring either a partial joint replacement or total joint replacement. A joint replacement can last for years, and it can often be successfully repeated if the first prosthesis is damaged due to trauma (i.e., automobile accident), or ongoing disease process. For certain situations, there are times when the anatomy and joint condition of a patient does not conform to the stock prosthesis system. Your surgeon may recommend TMJ Patient-SpecificTM Prosthesis, designed and manufactured especially for you (using a model of your bony anatomy)

WHEN TEMPOROMANDIBULAR JOINT REPLACEMENT IS INDICATED

- If you have inflammatory arthritis that has not responded to other treatments prescribed for you;
- If the tissues connecting the bones in the TMJ fuse (grow together) to those adjacent bones,

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causing a loss of motion in the joint where pain is sometimes present, which doesn't respond to treatments prescribed by your physician;

- Severe internal worsening (referred to as *internal derangement* and/or *deterioration*) with or without a hole in your disc (referred to as *meniscal perforation*) not responsive to other modalities (types) of treatment; or
- If your physician has tried to do a tissue graft or some other form of surgery, which has not been successful

WHEN YOU SHOULD NOT HAVE TEMPOROMANDIBULAR JOINT REPLACEMENT SURGERY

- If you have not had a complete diagnostic work-up and trial of conservative, reversible therapy
- If you have an infection or some form of malignancy in your head or neck;
- If you do not have enough bone in your TMJ to support the implants;
- If you are allergic to the material in the implants;
- If you suffer from a mental or neuromuscular disorder that will make it difficult for you to do the follow-up therapy required after the operation; or
- If you have uncontrolled clenching or grinding in your jaw, which would overload or possibly fracture the implants

THE COMPLICATIONS OR SIDE EFFECTS THAT CAN OCCUR FROM THIS SURGERY

Some complications may result from the surgery or the placement of the device. Like all joint reconstruction, jaw reconstruction with implants is serious and complex. It is not without risk. You must evaluate the possible benefits to you as well as the risks of surgery as you make your decision to have or not to have surgery. There are a number of possible complications. These may require treatment. The possibility of complications is related to your condition at the time of the surgery, the surgery itself, and your medical history, especially past surgeries related to TMJ. These complications include, but may not be limited, to:

- Pain, spasms or swelling
- Weakness of the facial nerves and muscles
- Dislocation of the joint
- Infection
- Changes in the joint, or tissues attaching to the bone
- Nausea or vomiting
- Bleeding
- Seizures
- Your teeth no longer come together correctly (referred to as *malocclusion*)

Most of these conditions are not related to the device itself. In addition to the ones listed, it is possible you will experience one or more of the following effects:

- Blood clots or bleeding
- A restriction in your range of motion or a misalignment of the jaw
- A reaction to the implant materials
- The rejection of the device by the body
- Wear, movement or loosening of the implant
- Fracture of the implant
- Hearing problems
- Damage to the parts of the body near the location of the surgery
- Discomfort
- Speech problems
- Some deformity of the face.

POST-OPERATIVE INSTRUCTIONS

What Happens After the Surgery?

Every surgical procedure is different, but based on past experience, you may need to continue various forms of treatment after the surgery. These could include physical therapy, additional dental work, braces, or surgery to correct problems with the position of your jaw or revisions of your implant.

Will The Surgery Cure Me?

Probably not. You may not experience total removal of pain, but a significant moderation of your pain is a reasonable expectation for many patients. The amount of relief will vary by patient, and patients who have had a number of prior TMJ surgeries may not get the same relief as patients who have had no surgeries or only one or two. The same thing can be said for improvement in opening and/or jaw function as evidenced by an acceptable vertical opening, functional bite (occlusion) and the ability to chew solid foods.

You will most likely be able to feel your implant as well, since there is not much soft tissue between your skin and the implant. Most patients are satisfied, however, with the restoration/maintenance of their looks (referred to as facial aesthetics).

The relief from pain and restoration of function, which you experience, may be affected by the way in which you follow your physician's instructions after the surgery is completed. Your physician may give you medication, and prescribe a course of physical therapy. You may be given a jaw-exercising device.

Follow your physician's instructions carefully, so that you can get the full benefit from the surgery you undergo. Any program given to you will likely involve constant motion of the new joint, which might be painful or even boring. It is vital that you follow the postoperative physical therapy instructions to get the best amount of jaw movement, mouth opening and decrease in muscular pain. Continue to do the exercises to ensure the best motion and function possible. The best surgery is only as good as the therapy that is performed afterwards. Not following your therapy regimen can lead to an unsuccessful outcome. If you cannot commit to the post-operative therapy regimen, then reconsider which treatment option other than TM reconstruction best suits your needs.

OTHER THINGS THAT HAPPEN AFTER YOUR SURGERY

Depending on the results of the surgery, your physician may start you on a special diet. Even if that does not happen, avoid any hard, crunchy or sticky foods, which could damage your implants or cause you pain and discomfort. For the same reason, do not chew gum.

Your jaw has been restored, but it is not as strong as it was naturally. Therefore, you have to avoid contact sports and dangerous situations that could strain your jaw.

You may have stiffness and less overall function than you had before the development of your TMD. The physical therapy may help lessen these effects.

Your implants may make sounds or noises. This doesn't happen often, but it can, and generally is not significant. Most patients report these noises have decreased over time. Always ask your doctor if you have any questions.

OTHER THINGS YOU NEED TO DO

- Contact your physician or surgeon if you experience any problems or have any questions (e.g., related to the surgery, your post-operative treatments, progress)
- Keep your follow-up visits
- Do the therapy recommended
- Notify the manufacturer if you move: We need to know how to contact you to give you any new information concerning your implants.

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GLOSSARY

Internal Derangement. When the disc is displaced by the muscles, there is a disturbance of the regular order or arrangement. If this is maintained too long, there can be a chemical break down of the tissue in the TMJ compartment, and elasticity is lost. Once this force is lost, there is no mechanism to place the disc back in its' proper position. This loss of function may lead to increased pain. Think of it as a sock that has lost its' ability to stay up around your leg anymore, and sloughs down into your shoe.

Trauma. A blow to the jaw that may damage bones and tissues in the TMJ (e.g. A car accident).

Stress. Constant bruxism (grinding teeth), clenching jaw and overloading the joint may cause spasms in the muscles, and expose nerves to severe pain.

Tissue Imbalance. The worsening (referred to as *deterioration and/or degeneration*) of tissues in and around the jaw joint, which can lead to loss of function and increased pain.

Adhesions / Ankylosis. When connective tissues fuse to the opposing bone causing restricted motion and pain. If left untreated, the bone may actually fuse to the tissue, impairing the joint permanently.

Bone Disease. (Osteoarthritis) Arthritis characterized by the erosion of articular cartilage, either primary or secondary to trauma or other condition. A severe injury or chemical imbalance can cause reduced blood supply to the bone and surrounding tissues. Eventually the bone can die and the joint deteriorates.

Tissue Disease (Necrosis) The death of the tissue, resulting from permanent (referred to as *irreversible*) damage (i.e. infection, trauma).

History of Multiple TMJ Surgeries. This is one of the most difficult types of symptomatic TMJs to treat. This type of joint has been operated on two or more times and continues to have significant problems. In addition, there may be a history of alloplastic (e.g., unchanging metal or plastic materials) implants for the TMJ which have a significant failure history (Vitek-Proplast/Teflon, and Silastic) and which may continue to cause problems even after removal of the prosthesis. The Multiply Operated joint that has been operated on frequently has a given liking to reject the effectiveness of any surgical treatment.

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